APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/758,155	01/12/2001	Masahiro Kazayama	0649-0770P	8919

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EXAMINER
HUNG, YUBIN

ART UNIT	PAPER NUMBER
2625	

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Please find below and/or attached an Office communication concerning this application or proceeding.

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	Office Action Summary	Application No. 09/758,155		Applicant(s) KAZAYAMA ET AL.
		Examiner Yubin Hung		Art Unit 2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.
2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
    closed in accordance with the practice under *Ex parte Quayle,* 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-8_ is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) _1-8_ is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on _12 January 2001_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☒ All b)☐ Some * c)☐ None of:
      1.☒ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
          application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)
1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _3_.
4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

*   P. 1, last paragraph of section 2: it appears that "the distance of the I-picture or

    the P-picture" should have been "the distance between the I-picture and the P-

    picture"

*   Claim 3, line 3: it appears that "a distance of an intra coded picture or a

    predictive coded picture" should have been "a distance between an intra coded

    picture and a predictive coded picture"

    [Note: For examination purpose claim 3 is interpreted as has been rewritten

    accordingly.]

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 6, 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Takizawa et al. (6,097,737), in view of Bhaskaran et al. ("Image and Video Compression

Standards—Algorithms and Architectures", 2nd ed., 1997)

4.   Regarding claim 1, similarly for claim 7, Takizawa et al. discloses

- an encoding preprocessing portion for extracting the amount of image
  feature from a moving image not encoded
  [Fig. 5, numeral 115; Col. 5, lines 33-53]
- a control portion for setting encoding parameters based on the amount of
  image feature extracted in the encoding preprocessing portion
  [Fig. 5, numeral 116; Col. 5, lines 54-57]
- an encoding portion for encoding the moving image whose frames are
  sorted by the encoding preprocessing portion, based on the encoding
  parameters from the control portion
  [Fig. 5, numerals 101-114. Note that while 105 alone constitutes an
  encoder, 101-114 in combination performs a more sophisticated encoding]

Takizawa et al. fails to disclose sorting each of frames in the encoding order. However,

Bhaskaran et al. teaches reordering (i.e., sorting) of the frames [P. 190, 2nd paragraph].

Therefore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify Takizawa et al. by reordering the frames as taught by

Bhaskaran et al. since, for example, a B-frame will need frames both before and after it

in the temporal sequence to be available for encoding, as mentioned by Bhaskaran et

al. [lines 3-5 of the same paragraph].

5.   Regarding claim 6, the Bhaskaran et al. suggests:

- divides each of the frames constructing the moving image into a
  plurality of regions and obtains the amount of image feature for each of
  the plurality of regions
  [P. 183, second paragraph, lines 1-5. Note that MPEG processing is
  block-based, i.e., the encoding is performed on each and every one of
  the blocks.]

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6.   Claims 2, 4, 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Takizawa et al. (US 6,097,737) and Bhaskaran et al. ("Image and Video Compression

Standards—Algorithms and Architectures", 2nd ed., 1997) as applied to claims 1, 6, 7

above, further in view of Fernando et al. (International Conference on Image

Processing, Vol. 3, 24-28 Oct. 1999, pp. 299-303).

7.   Regarding claims 2, 3, and similarly for claims 4 and 8, the combined invention of

Takizawa et al. and Bhaskaran et al. teaches everything except for the following

- encoding preprocessing portion extracts the amount of image feature for detecting a dissolve interval from the moving image not encoded

However, Fernando teaches the detection of dissolve using features comprising the 1st

derivative (i.e., linear differential value) and the 2nd derivative (i.e., quadratic differential

value) of the variance (another image feature) of an image frame [P. 300, Sect. 3.1,

lines 1-15]. (Note that per the analysis for claim 1, Takizawa et al. already discloses

that the control section sets encoding parameter according to extracted features, which

in this case are the 1st and the 2nd derivatives that together determine whether an image

is within or without the dissolve interval.)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify the combined invention of Takizawa et al. and Bhaskaran

et al. by extracting features for detecting dissolve as taught by Fernando et al. because

during the fading/dissolving period the mean and the variance of an image frame exhibit

a linear and a quadratic behavior, respectively, as pointed out by Fernando [P.300,

Sect. 3., lines 1-2].

8.   Regarding claim 3, the combined invention of Takizawa et al., Bhaskaran et al.,

and Fernando et al. teaches everything except for the following

- the control portion sets the encoding parameters so that a distance
  between an intra coded picture and a predictive coded picture is 2 when
  the encoding portion encodes the frames of the dissolve interval based
  on the amount of image feature extracted in the encoding preprocessing
  portion

However, at the time the invention was made, it would have been to a person of

ordinary skill in the art to use a distance of 2 as recited in claim 3. Applicant has not

disclosed that a distance of 2 provides an advantage, is used for a particular purpose,

or solves a stated problem. One of ordinary skill in the art, furthermore, would have

expected Applicant's invention to perform equally well with a distance of 1 because the

difference between two adjacent pictures in a dissolve period obviously can be no

greater than between a first and a third pictures and therefore the corresponding coding

error can be no worse.

Therefore, it would have been obvious to one of ordinary skill in this art to modify the

combined invention of Takizawa et al., Bhaskaran et al., and Fernando et al. by using a

distance of 2 to obtain the invention as specified in claim 3.

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9.   Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takizawa

et al. (US 6,097,737) and Bhaskaran et al. ("Image and Video Compression

Standards—Algorithms and Architectures", 2nd ed., 1997) as applied to claims 1, 6, 7

above, further in view of Mutoh et al. (6,631,210).

Regarding claim 5, the combined invention of Takizawa et al. and Bhaskaran et al.

teaches everything except for the following

  • extracts the amount of image feature for each signal component of each
    of the frames constructing the moving image

However, Mutoh et al. teaches the extraction of various features from the each of the C,

M, and Y components (i.e., signal components) [Fig. 19; Col. 30, lines 23-29].

Therefore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify the combined invention of Takizawa et al. and Bhaskaran

et al. by extracting image features for each of the image components as taught by

Mutoh et al. in order to improve the accuracy of any subsequent processing as afforded

by the redundancy inherent in multiple data source (i.e., different image components).

Conclusion and Contact Information

10.   The prior art made of record and not relied upon is considered pertinent to
applicant's disclosure. They are listed below:

- Wells (US 5,847,772) – discloses a video encoding process where the
  preprocessor can detect image fade to modify the compressor's behavior

- WU (US 6,084,641) – discloses a device that detects video fade that uses a
  difference in luminance intensity and a variance in the difference

- Allatar (US 5,283,645) – discloses a method and apparatus that uses a second
  derivative (i.e., quadratic differential) for dissolve detection

- Watanabe et al. (US 5,894,526) – discloses setting the initial inter-frame distance
  between a reference frame and a predicted frame to 2 and subsequently
  adjusting this distance depending on the size of the accumulated differential

- Gu et al. (IEEE Int'l Conf. Intelligent Processing Systems, V. 2, Oct. 1997, pp.
  1692-1696) – discusses an approach that uses a first derivative (i.e., linear
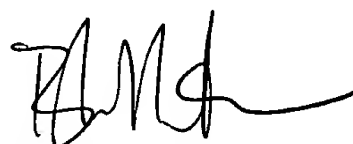 differential) for dissolve detection

11.   Any inquiry concerning this communication or earlier communications from the
examiner should be directed to Yubin Hung whose telephone number is (703) 305-
1896. The examiner can normally be reached on 7:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Bhavesh Mehta can be reached on (703) 308-5246. The fax phone number

for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Yubin Hung
Patent Examiner
March 10, 2004

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